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Milde says of it that the capsules are long-stalked with unmistakable indications of a lid. These specimens were collected at Blankenburg in the Harz Mountains by Hampe.

Schimper, Hampe, Lindberg, Braithwaite, Husnot, Sullivant and Lesquereux and James (our American authorities probably cited the European) all state that *P. patens* may have the capsules either immersed or exserted, and Boulay states that it is very variable and that the different forms may be found growing "pell-mell" in the same locality.

Limpricht, in a foot note to his description of *P. Hampei*, says that Lindberg claims to have seen this form in the axils of the leaves of *P. patens* but that he has never seen it.

We have a slight addition to make from our own observations, for in the Jæger Herbarium we find authentic specimens of Hampe's labelled: "Ephemerum patens var. anomalum. Seta exserta. p. Blankenburg. Ex. herbar. E. Hampe, 1865." These specimens show what Limpricht says he has not seen, two kinds of capsules on the same plant.

One plant which we have mounted has two capsules; the lower one small, immersed, with thin walls and characteristic large apical cells of *Physcomitrella patens*. The other is exserted on a thick seta 2 mm. long, with regular distinct cells in the walls of the capsules and a differentiated lid. The exserted capsules are almost all either young or aborted, so that no spores have been seen, but one old capsule has been found with the lid off, showing the mouth bordered with an orange-colored rim of cells and a distinct annulus. The immersed capsules are on the lower part of the plants, as in our hybrid; most of the capsules are older and have perfected their spores with measure .024–.027 mm. and are rough.

Japanese Characeae—II.

By T. F. Allen.

11. *Chara coronata* Ziz., collected in Province Ise, differs in no essential point from the forms of Nos. 2 and 3.

12. *Nitella Japonica* Allen, from a new locality in Province Ise, namely Yamagami; distributed with No. 14, under the exsiccatae number 9.

13. Nitella pulchella sp. nov.

Nitella polyarthrodactyla, monoica, gloeocarpa.

Stems about 460 in diamater. Verticels consist of eight or nine leaves (with an occasional simple, undivided leaf, but not heterophyllous.) Leaves about 150 in diam., thrice divided, primary segment much longer, (2680) ; first node bears 6–7 secondary segments, 68 diam., 600 long ; second node bears 5 tertiary segments, 34 in diam., 175 to 200 long ; occasionally one of these divisions is undivided like a simple terminal with three cells; the third node bears four to six (usually four) two-celled terminals, 25 diam., 170 to 240 long. The terminals are two (rarely 3) celled, the cells about equal in length ; the terminal cell is not mucroniform, but terminates, rather abruptly, in a sharp point (some collections more elongated and slender); other specimens, terminals very short, forma brachyteles. The fertile verticils are somewhat compact and borne upon pedicels arising from the stem within the primary verticils ; the entire fertile verticil becomes a globular, gelatinous mass. The leaves of the fertile verticil are usually *twice* divided, the antheridia borne on the second node are about 225 in diam., and decidedly stipitate, the stipes 200 long and 54 in diam. The oogonia are borne on both nodes of the leaf, single ; usually on the terminal node, sessile, the coronula minute.

The oospore, dark reddish, is 250 long, 200 broad, with 7–8 prominent ridges, the surface is strongly reticulated, the reticulae 5–12 in diam.

The relationship of this beautiful species is not clear, in some features it may be related to *N. trichotoma* A. Br., but it is clearly separated from it as well as from the subspecies *Zeyheri* and *Lechleri.*

It may be considered remotely similar to *N. gelatinosa* A. Br., of Australia, where species of the polyarthrodactylae-gloeocarpae section most abound, but this species remains quite unique and individual.

No. 14, *Nitella Japonica,* additional collections, more mature, from Yamagami, Province Ise, distributed as exsiccatae No. 9.

No. 15, Nitella subglomerata Japonica *var. nov.*

Verticels consist of a large number of leaves, often 12 to 16, apparently irregularly in a double series, some longer, some shorter, but all twice divided ; the first node bears three oogonia and three secondary divisions, the second node also bears three oogonia and three terminals ; rarely one of the secondary divisions does not form a node, but remains as a simple one-celled terminal; the terminals of the second node, usually three in number, are one-celled and acuminate above the middle, terminating in a sharp point which is solid.

The oogonia are aggregated, three together, at each node of the leaf, not closely sessile, with a rather large and persistent coronula, the lower cells of which appear to be spreading, as in some sub-species of the polygiochin group, in all from 350 to 400 long. The oospore is marked with 6 striae, 204 long, 180 to 190 broad. The membrane of the spore is strongly reticulated, the reticulae averaging 5 μ in diameter. This Japanese form differs mainly in the somewhat smaller spores, which are much more strongly reticulated; the antheridia also are smaller, 200 in diam. This species was collected in Mikawa, Seishin pond, and distributed as No. 15 of my Japanese exsiccatae.

No. 16. NITELLA SUBLUCENS sp. nov.

Nitella diarthrodactyla, homoeophylla, monoica macrodactyla, subflabellata, gymnocarpa. Fertile verticils contracted into dense terminal or axillary heads, long overtopped by the sterile leaves; verticils very dissimilar. The long sterile leaves are surmounted by a crown of about four minute two-celled leaflets. Fertile leaves twice- rarely thrice-divided, terminal segments usually four, short, two-celled, the lower of the two cells inflated, theterminal cell a sharp mucro, oogonia clustered at the base of the fertile verticils and at the first node of the leaves; oospore, 285 long and broad, globular, six or seven striate. The present specimens are too immature to determine the character of the membrane of the spore. Antheridia about 200 in diameter.

This species is closely allied to *N. translucens* (Pers.) Ag; from which it differs by its smaller size, and especially the much smaller oospore (and its locality).

This species was collected in Sagami, Kodsu, and distributed as No. 16 of my Japanese exsiccatae.

17. *Chara gymnopitys* A. Br. var. "*alpha*" A. Br.

This form, though not exactly corresponding to *gymnopitys genuina* A. Br., seems to be on the border between that and var. (*beta*) *duriuscula* A. Br., both from Australia; and as A. Braun has left var. "Alpha" blank, it may well be occupied by this variety. The stems are about 306 in diam., with small, conical, broad-pointed spines; leaves about 8, stipules 16, the cortex cells double, alternately large and small, often with additional, partially developed cells, so that sections show about 20 cortex tubes; bracts at the leaf-nodes equally developed all around, slender, long, acuminate-pointed, about 60 in diam. The oogonia seem to be distinctly stipitate, the oospores average 560 long by 365 to 390 broad, with 8 (10–11) striae. The coronula is short, broad and square-shaped. Antheridia are rather rarely found, 293 in diam.; when present, conjoined.

This species was collected in Mikawa, Tennu pond, and distributed as No. 10 of my Japanese exsiccatae.

No. 18, same species and variety as the last, collected in Tokio, Shinbashi pond, and distributed as No. 11 of my exsiccatae Japonicae. Nos. 19, 20 and 21, *Nitella pulchella* Allen, collected respectively in Chikubushima pond, Mikawa Tennu pond, and Tokio Shinbashi pond, and distributed as Nos. 13 and 14 in my exsiccatae Japonicae.

As a matter of record it may be well to add that the following list of Exsiccatae Japonicae has been distributed as far as specimens would allow; of *N. sublucens* Allen only fourteen specimens could be sent out.

CHARACEAE JAPONICAE EXSICCATAE.

DISTRIBUTAE A T. F. ALLEN.

I

1 Chara fragilis Desv.
2 Nitella coronata Ziz.
3 Nitella coronata Ziz.
4 Nitella Japonica Allen.
5 Nitella mucronata A. Br.
var. tenuior A. Br.
6 Nitella Japonica Allen.
7 Nitella orientalis Allen.
8 Nitella pulchella Allen.
9 Nitella Japonica Allen.
10 Chara gymnopitys A. Br.
var. "alpha" A, Br.
11 Chara gymnopitys A. Br.
var "alpha" A. Br.
12 Nitella paucicostata Allen.
13 Nitella pulchella Allen.
14 Nitella pulchella Allen.
15 Nitella subglomerata A. Br.
var. Japonica Allen.
16 Nitella sublucens Allen.
17 Nitella oligospira A. Br.

Tradescantia Virginica var. villosa Watson.

There are doubts whether this is a variety of *Tradescantia Virginica* L. or should have specific rank. Forms are found which apparently connect the extremes and make it difficult to draw the